

Memorandum

To: Joint Management Committee
From: John Livermore, Program Manager, ENERGY STAR Homes
Re: 2001 Massachusetts Metrics Performance Summary

In program year 2001 the Joint Management Committee had three ENERGY STAR Homes metrics to measure program performance in Massachusetts:

1. Market penetration (percentage of signed ENERGY STAR Home builder agreements measured against building permits, with a builder discount factor applied to account for permits that don't result in finished homes). [Threshold: 16%, Design: 18.5%, Exemplary: 21%]
2. Number of installed ENERGY STAR lighting fixtures per completed home/unit. [Threshold: 7, Design: 8, Exemplary 9]
3. Incorporating Lighting & Appliances into HERS:
 - Work with Architectural Energy Corporation (AEC) to incorporate a lighting, appliance, and photovoltaic enhancement into REM/Rate. The total project included developing a methodology and then incorporating that methodology into the REM/Rate software. Consult with HERS industry players to review drafts of lighting & appliance methodology proposals. Produce final project report. [Threshold: Develop the protocols and standards for the expansion by 7/31/01, Design: Research, develop, create and test a custom REM/Rate software version with the expansion modifications by 10/31/01, Exemplary: Using the protocols, standards and enhanced software developed, conduct an analysis of at least 100 recently completed single family ENERGY STAR/JMC homes and document the pilot and results including key program and market opportunities and issues by 1/31/02]

Results of these metrics for program year 2001 are as follows:

1. Market penetration: 21.44% [Exemplary level]
2. Installed ENERGY STAR lighting fixtures: Average 8.05 fixtures per home [Design level]
3. Incorporating Lighting & Appliances into HERS [Exemplary level]



Nexus Market Research

**Multi-Year Program Evaluation and Market Progress
Reporting (MPER) Plan for the
Massachusetts ENERGY STAR Homes Program**

Submitted to:

**Fitchburg Gas & Electric Light Company
National Grid
NSTAR Electric
Western Massachusetts Electric Company**

Submitted by:

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Executive Summary

This document is intended to assist the Joint Management Committee (JMC) of the investor-owned utilities monitor the Massachusetts ENERGY STAR[®] Homes Program in a timely and cost-effective manner. It describes the program objectives, the residential new construction (RNC) market in the Commonwealth, other considerations underlying the program design, and various market and evaluation information needs. In addition, it provides a discussion of the steps that should be taken to monitor, assess, and report the effects and outcomes of the program, including various research and reporting options that appear appropriate at this time but which may be modified as future circumstances dictate.

The research plan is laid out in detail in Chapter 1. The implementation schedule provides, by time period, tasks that should be completed, the rationale for each, and the relative priority for each. For example, the plan recommends that the JMC initiate four high priority tasks at the very beginning of 2002. These tasks, all of which should be given high priority, are:

- Issue an RFP for (further) development of the theory underlying the Massachusetts ENERGY STAR Homes Program
- Issue a separate RFP for a three-year contract to prepare annual Market Evaluation Progress Reports
- Review the research method used to develop penetration estimates and estimates of program effects by NSTAR, for use or enhancement in estimating statewide program results
- Discuss the most useful builder and home-type segmentation categories with the program implementation contractor, Conservation Services Group (CSG)

Other important tasks are identified for all but one month through the first two quarters of 2002. These include the follow-up on the first month's activities: selection among the bidders to the recommended solicitations, determining the variables to be used in segmenting the market for tracking; and determining whether to bid out the development of new market penetration curves. Other activities for the first half of the year include initiating a process evaluation of the collaborative process and determining what issues, if any, require targeted research during the first year of the budget cycle. In this plan, the latter half of the year would be devoted to reviewing the results of the research that has been commissioned and determining what modifications should be incorporated into program design and execution. The plan follows a similar pattern for each of the following two years, although the specific studies recommended are selected to fit with the needs of those years.

The three remaining chapters of the document are designed to provide the rationale for this research program. Chapter 2 summarizes information about the Massachusetts market, drawn from a market assessment study commissioned by the JMC and completed in 1999, as well as other market characteristics presented in the utilities' three-year plan. In addition, this chapter describes the market actors affecting the RNC market and their patterns of influence, as well as the then-current (1999) status of energy efficiency in that market.

Chapter 3 discusses the theory underlying the Massachusetts ENERGY STAR Homes Program. The chapter begins with presentations of the program theories animating the National ENERGY STAR Homes Program and the Wisconsin ENERGY STAR Homes Program. It then notes several issues on which these RNC markets differ from that found in Massachusetts. With this as a preface, the chapter then turns to a discussion of the current program theory for the Massachusetts ENERGY STAR Homes Program. Following an overview of the status of the theory, this is laid out in terms of goals and objectives, the hypothesized barriers to energy efficiency in the RNC market, the program interventions designed to overcome those barriers, the levels of investment involved, and the expected program effects and market effects. Finally, key points of the program theory are summarized in tabular form.

Chapter 4 focuses on the information needs of the utilities and the non-utility parties that are sponsoring the Massachusetts ENERGY STAR Homes Program. These include both the need to determine the validity of the program theory and the progress achieved in meeting pertinent expectations, on the one hand, and the need to provide ongoing evidence of program effectiveness, on the other. Among the components of the latter effort are the following: maintaining an informative database of program activity and accomplishments, regular reporting of activity and outputs, assessment of energy and demand savings, estimation of market penetration—and penetration resulting from the program.